

# Nonproliferation and International Security Center (NISC)

## Introduction

We live in a rapidly changing world in which threats involving the proliferation of weapons of mass destruction (nuclear, biological and chemical) and their potential use by rogue states or terrorists loom over all of us. The Department of Energy Offices of Nonproliferation and National Security (DOE-NN) and Intelligence (DOE-IN) have the responsibility for major programs to counter these threats. Most are time urgent and have sensitive national security implications. For example, controlling nuclear materials in states of the former Soviet Union, verifying the Comprehensive Test Ban Treaty (CTBT), countering nuclear smuggling, safeguarding nuclear materials and weapons and, most recently, countering threats involving chemical and biological agents and helping enable the START process to continue downsizing nuclear weapon stockpiles. These programs are truly important to the security of the United States and the world, and the national laboratories through DOE-NN and DOE-IN are the major agents responsible for carrying out this work.

*"I...find that the proliferation of nuclear, biological, and chemical weapons ('weapons of mass destruction') and of the means of delivering such weapons, constitutes an unusual and extraordinary threat to the national security, foreign policy, and economy of the United States, and hereby declare a national emergency to deal with that threat."*

➤ President Clinton, November 14, 1994 (EO 12938)

*"The Department of Energy, from its roots in the Manhattan Project, was and remains the primary agent for maintaining a safe and reliable nuclear deterrent. In this new era, we have the equally challenging job of drawing down our nuclear complex, keeping nuclear materials from falling into the wrong hands, and containing the knowledge needed to make nuclear weapons."*

*"America's security against nuclear, biological, and chemical dangers now hinges on creating tomorrow's tools today so we can defeat threats posed not by a Cold War-era totalitarian superpower but by terrorists, criminals and regimes such as those in Libya, Iraq, Iran and North Korea."*

➤ Secretary of Energy Bill Richardson, March 2, 1999

*"The threat is neither far-fetched nor far off, and the threat will only grow. The front lines are no longer overseas. It can be in any American city."*

➤ Secretary of Defense William Cohen, November 25, 1997

*"... it is very easy to make a chemical or biological weapon or bomb or instrument of mass destruction. Almost anyone can do it today. You don't need a laboratory. You don't need an army. You don't need a guided missile system. You can make it in a kitchen in a mayonnaise jar."*

➤ Senator Pete Domenici

Los Alamos is an essential supporter of these DOE programs. The Laboratory carries out a very diverse and robust R&D program to develop detection systems and technology; is a major contributor to assessing foreign nuclear weapon capabilities and responding to nuclear-related emergencies; and for many years, has provided much of the technology and expertise needed to verify treaties and implement various safeguards regimes to ensure compliance with terms and conditions of treaties and agreements. Los Alamos has launched major efforts aimed at countering nuclear smuggling and chemical or biological weapons and in support of the Helsinki Accords to continue the START process. In 1993 the Laboratory consolidated major programs and capabili-

ties in detection R&D, intelligence, nuclear safeguards and emergency response in an organization called Nonproliferation and International Security (NIS). This organization is the Laboratory's prime responder to DOE-NN and DOE-IN programmatic needs, including approximately \$120M per year in funded effort for DOE plus about \$30M in related work for other federal agencies.

### **Mission Need**

Unfortunately, the full benefit of this synergistic organization has not been realized because of the handicap of NIS being located in substandard facilities scattered across the 43-square-mile Los Alamos site. NIS operations are scattered over six Los Alamos technical areas with NIS personnel housed in 47 different structures, many of which are old and substandard. This situation is intolerable given the criticality of effective NIS response to the national emergency declared by (and revalidated by) President Clinton.

The opportunity costs of this dispersal are immeasurable but undoubtedly immense. Furthermore, the consequences of the current situation are potentially catastrophic; for example, the failure of the U.S. Government or local law enforcement to prevent a terrorist organization from using a weapon of mass destruction in a U.S. city because Los Alamos was not able to develop a needed technology in time.

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Despite such communications advances as e-mail and the Internet (and the Laboratory is at the leading edge in the use of both technologies as productivity tools), NIS scientists are missing opportunities for collaborative research. For example, NIS-5 scientists, engineers, and programmers working at TA-35 in sensor technology development for nuclear applications do not find it convenient to collaborate with their NIS-1, -2, -3, and -4 colleagues in TA-3 working on related sensor and instrumentation developments for space or remote sensing applications due to the 3-mile separation. Similarly, the many NIS-5 and -7 personnel who travel frequently to the former Soviet Union don't find it convenient to discuss what they see and hear with others in NIS. Some of these collaborations happen through meetings, seminars, and other formal processes, but the serendipitous benefit of frequent, informal interactions is missed.

Consolidation would greatly enhance these collaborations and thereby the effectiveness of Laboratory support to DOE and the nation. A recent study shows that with the planned consolidation we can expect:

- Increases in number of scientific collaborations -- Collaboration rate strongly facilitated.<sup>1</sup> Upper speculative bound is 87% increase. Likely increase is at least 10%.

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<sup>1</sup> Source: Kraut, Robert E., Carmen Egido, and Jolene Galegher, "Patterns of Contact and Communication in Scientific Research Collaborations," *Intellectual Teamwork - Social and Technological Foundations of Cooperative Work* (Lawrence Erlbaum Associates, Inc., New Jersey, 1990), Chap. 6.

- Increase in frequency of technical communications -- Communications increase exponentially with proximity.<sup>2</sup> Internal communications will at least double and very likely will increase by much more than double.

Less important but quantifiable secondary benefits to NIS personnel productivity that will accrue by consolidation include:

- Savings in support-function consolidation -- 0.85% of total NIS budget.
- Savings of intra-division travel time -- 2.0% of total NIS budget.

Not only are NIS operations scattered, but also most are performed in substandard facilities. The Laboratory Capital Assets Management Plan (CAMP) ranked all Laboratory space in terms of quality using six categories ranging from "Excellent" down to "Fail." Of the groups proposed for consolidation in the new facility, only 2 percent are housed in space classified better than "Adequate." Twenty-six percent of current activities are in space classified either as "Poor" or "Fail." The 47 buildings housing NIS personnel include many "temporary" trailers and transportables. These old and substandard structures are not energy efficient, and they are a negative factor in recruiting top scientific staff as Los Alamos strives to maintain its status as a world-class laboratory.

Old structures are expensive to maintain. Building 27 in TA-35 (NIS-5) was built to be a nuclear reactor but never used as such. It, therefore, has many special design features that make it an inefficient facility for our operations (although NIS-5 has found very creative uses for some of them). The risk of continuing to operate in such old facilities was illustrated dramatically and painfully. A 30-year-old water chiller in this facility suffered a mechanical failure during an unusually cold weekend in November 1997. The failure allowed the system to freeze with the result that several chiller pipes burst while the building was unattended. By the time personnel returned to the building, over five feet of water had accumulated in the bottom floor of the building submerging dozens of delicate electrical instruments, reams of valuable technical and programmatic information, and many (fortunately sealed) nuclear sources used for calibrating nuclear instruments. The building had to be totally evacuated for several days. The total cost and schedule impacts to the NIS program cannot be assessed, but cleanup of the facility and replacement of equipment alone amounted to more than \$2M. The NISC team carefully considered the DOE Type B investigation report, particularly Table 3, "Conclusions and Judgments of Need," in preparing the NISC Conceptual Design Report (CDR).<sup>3</sup>

Consolidation will lower NIS Division facility maintenance costs by at least \$15M over the projected 30-year life of the facility.

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<sup>2</sup> *Ibid*

<sup>3</sup> "Type B Accident Investigation Board Report, Chiller Line Rupture at Technical Area 35, Building 27, Los Alamos National Laboratory," Department of Energy, Albuquerque Operations Office, February 1998

**Conceptual View of Nonproliferation and International Security Center (NISC) and Strategic Computing Complex (NISC is on the left).**



### **Project Description**

Los Alamos will consolidate NIS Division – a unique national resource – physically as well as organizationally near the core of Laboratory activities by co-locating almost all NIS activities in new and existing facilities within convenient walking distance within TA-3.<sup>4</sup> To accomplish this requires construction of a major new facility – the Nonproliferation and International Security Center (NISC). This consolidation will enhance program synergy and effectiveness by co-location of the NIS nonproliferation, arms control, treaty verification, and intelligence functions near the scientific, technological, and information sources that support these programs.

The new facility of approximately 163,375 square feet (gross) will be built on what is now a parking lot located across a low-traffic street from the Physics Building (SM-40) and Space Sciences Laboratory (SM-502) in which NIS-1, -2, -3, and -4 activities currently are conducted. NISC will be the home for groups NIS-2, NIS-5, NIS-7, NIS-8, and

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<sup>4</sup> Over 90 percent of the NIS Division staff will be consolidated in the TA-3 area. The only NIS activities that will not be consolidated are those in TA-18, a hazards Category II nuclear facility that would be impractical to relocate to TA-3, and those in the Center for International Security Affairs, which is ideally located for its daily interactions with foreign visitors.

NIS-9; the three NIS Program Offices (NIS-NAC, NIS-RD, and NIS-IT); Facility Management Unit (FMU) 75; and the NIS Division Office. The new facility will house much of the arms control, treaty verification, nuclear safeguards, nonproliferation, and weapons assessment functions of NIS Division. The staff and facilities provide the expertise and infrastructure to support the programs related to this mission. The proposed location for the facility is ideal requiring only a short walk to reach those NIS space sciences activities not located in NISC. (These activities will be consolidated in the space in SM-40 vacated by NIS-2 and NIS-RD.) The new facility will be multi-story (full basement plus four stories above ground) and will house 465 people in spaces designed for technical and administrative offices, light laboratories, light manufacturing, special security, and support activities. The laboratories will be for physics, electronics, optics, instrumentation development, computer, intelligence, and other uses. Significant features include nuclear instrumentation development and training laboratories in the basement; a high-bay laboratory with adjacent machine shop on the first floor; technical and administrative work spaces on the first, second, third, and fourth floors; and a Sensitive Compartmented-Information Facility (SCIF) on the fourth floor.

NISC will greatly consolidate classified activities in NIS Division thereby providing enhanced personnel and physical security. NISC activities will range in sensitivity from unclassified operations through Top Secret. Unescorted access to the building will be restricted to personnel with at least an "L" level clearance. A stratified security posture will be implemented to accommodate programs dealing with unclassified but proprietary information, classified matter at the Secret level including Restricted Data (RD) and Weapons Design Information, and classified matter at the Secret and Top Secret Special Access Required (SAR) level which subsumes Special Access Programs (SAPs) and Sensitive Compartmented Information (SCI).

- All operations in the basement, first floor, and second floor will be designed for discussions, electronic processing, and closed storage of up to Secret Restricted Data (SRD) information, but initially will be restricted to Secret National Security Information (SNSI); i.e., "L" level activities. Functions in this portion of the building include development and calibration of optical and nuclear instrumentation, remote sensing research, computing, and a radio-frequency laboratory.
- The second floor will be designed for discussions, electronic processing, and closed storage of Secret Restricted Data (SRD) information, but initially will be restricted to Secret National Security Information (SNSI); i.e., "L" level activities.
- The third floor will be designed for discussions, electronic processing, and closed storage of Secret RD information; i.e., "Q" level activities. Several vault-type rooms (VTRs) will be provided for future Special Access Programs.
- The fourth floor will be designed for discussion, electronic processing, and open storage of SRD; the discussion, electronic processing, and closed storage of Top Secret/Secret SAR; and open storage of Top Secret/Secret SAR in designated VTRs.



- The third and fourth floors will be designed to SCIF requirements; however, initially only the fourth floor will be accredited for such operations.
- Access will be controlled on all floors using badge readers and appropriate biometric devices supplemented by a guard (during normal working hours) on the fourth floor. Access control mechanisms will be designed for the supervised movement of people and material to ensure safe and secure conduct of operations.

The chosen site provides unobstructed access for staging and construction. Site drainage can be accomplished easily. All necessary utilities are readily available.

### **Project Status**

DOE-NN validated the project need in April 1997 (CD-1). Los Alamos then developed a comprehensive Conceptual Design Report (CDR). The Total Estimated Cost (TEC) and Total Project Cost (TPC) for the project are \$58.8M and \$62.7M, respectively, based on design beginning in FY00 and occupancy occurring in the third quarter of FY03.<sup>5</sup> In July 1998, DOE-NN validated the project based on the CDR and supporting documentation (CD-2). Congress appropriated \$6M funds in the fiscal-year 2000 budget to begin the design of the facility. The Laboratory awarded a team led by Hensel-Phelps a single contract in February 2000 for design and construction of the facility.

A National Environmental Policy Act (NEPA) environmental assessment (EA) is essentially complete and ready for public comment. The environmental impacts of the project are minimal. DOE issued a Finding of No Significant Impact (FONSI) in 1999.

A preliminary hazards analysis (PHA) was submitted to DOE for review. The safety hazards are low and readily controlled. The facility will be operated as a Performance Category 2 (PC-2) radiological facility in accordance with DOE-STD-1027-92, "Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports." The Laboratory verified the seismic suitability of the chosen site by analysis of borehole samples taken at the specific location.

**NISC will provide an appropriate consolidation, focus, and stature to Los Alamos efforts in nonproliferation, arms control, and national security commensurate with the contributions the Laboratory is making and on an equal footing with the Laboratory's historic nuclear weapons mission.**

The Laboratory initiated construction of a second major facility in FY00, the Strategic Computing Complex (SCC), just north of the NISC facility site (Figure). The NISC and SCC projects teams are coordinating closely, and an interface agreement has been developed. Hensel-Phelps is the design-build contractor for both projects. During

<sup>5</sup> Los Alamos is preparing a baseline change proposal (BCP) to adjust the project budget and schedule for the impact of the two-month delay in receipt of FY 2000 funds and the almost two-month delay in DOE approval of the design-build contract.

FY99, the Laboratory constructed new parking facilities to compensate for the impact of the NISC and SCC facilities.

Congress mandated an External Independent Review (EIR) of all DOE construction projects, and the NISC review was conducted in May 1999. The draft report from this review, which included specific findings and recommendations for corrective action, was submitted to DOE in June 1999. DOE and Los Alamos developed a Corrective Action Plan in response to the report, and essentially all of the actions agreed to in the plan are complete.